

19/4/2016 الاثنين

د. سالم

ماضرة 8

Summary of previous models

CLD \Rightarrow Concerned with causes and effects (Causality Point of view)

SFD \Rightarrow to prove that no system is static

DFD \Rightarrow Concerned with flow of data (data Point of view)

ERD, EERD \Rightarrow Concerned with relations between entities

CLD & SFD are system dynamics oriented

In Science, if you, for example, see DFD as incomplete or have problems, you either

① reject it and come up with a better model

② enhance it by modifying it

* EERD introduced new features to ERD, like inheritance (specialization and generalization)

* Many-to-Many are not the same

- Fridges and motors \Rightarrow Fridges contain motors

a fridge can have any motor, motor can be in any fridge.

- Customers and goods are many to many, but nothing contains the other.

disjoint and overlap

↓
item can be

in one children only

↘ item can be in more than one childrens

an item can be in parent and not categorized to a children, like registering a vehicle but

not knowing its type (car, truck, ...)

Normalization in relational model

We will study 1st, 2nd, 3rd normalization

Full dependency
Partial dependency
Transitive dependency } types of dependency

dependency occurs between attributes

data can be derived from other data.

data can be measured or observed.

dependency of non-key attribute on another non-key attribute is a transitive dependency

Rule: Best table design is where every non-key attribute fully depends on a key attribute

to solve dependency, you normalize, that is you separate entities,

this causes performance degradation since you get more tables.

- Avoid Redundancy

- Try not to use weak entities

- don't use an entity set when attribute can do

Advice when designing

- * First normal form has no multivalued attribute
- # having key attribute means we are in 1st normal form
- * Normalization avoids anomaly deletion and insertion
- # 2nd normal form deals with partial dependency
- # 3rd normal form deals with transitive dependency

first normal form: no multivalued attribute, and key attribute must be defined

second normal form: remove partial dependency

third normal form: remove transitive dependency

checking 1st, 2nd, 3rd normalization is a must.